Owner's Manual

924000 Series 11 HP
Sno-Thro

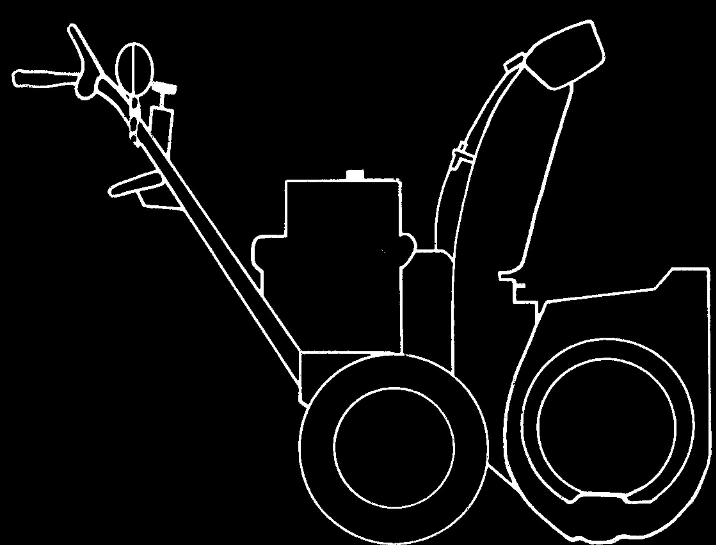
Model 924071 (ST1136) 11 HP 36''
Large wheel w/differential; remote deflector and headlight
Serial no. 000101 and up

ATTACHMENTS

Model 824009 - 36''
Large wheel sno-thro
Serial no. 000101 and up

⚠ SAFETY MESSAGE ⚠

The product for which you have requested information or replacement parts is not a current product. The replacement models incorporate product designs, safety features, safety instructions or warnings which represent the latest "State Of The Art" developments. For your safety and those around you please contact your nearest Ariens/Gravely Dealer for a demonstration of the current product safety provisions and features.



Ariens

Ariens Company
655 West Ryan Street
Brillion, Wisconsin 54110

Part No 024534
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INSTRUCTIONS FOR SAFE OPERATION

TRAINING

1. Read the Owner's Manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the Sno-Thro and disengage the controls quickly.
2. Never allow children to operate the Sno-Thro. Never allow adults to operate the Sno-Thro without proper instruction.
3. Keep the area of operation clear of all persons, particularly small children, and pets.
4. Exercise caution to avoid slipping or falling, especially when starting or operating in reverse.

PREPARATION

1. Thoroughly inspect the area where the Sno-Thro is to be used and remove all doormats, sleds, boards, wires, and other foreign objects.
2. Disengage all clutches before starting the engine (motor).
3. Do not operate the Sno-Thro without wearing adequate winter outer garments and eye protection such as safety glasses. Wear footwear which will improve footing on slippery surfaces.
4. Handle fuel with care; it is highly flammable.
   a. Use an approved fuel container.
   b. Never add fuel to a running engine or hot engine.
   c. Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
   d. Replace gasoline cap securely and wipe up spilled fuel.
5. Use the power cord furnished with the electric starter, if so equipped.
6. Adjust the blower housing height to clear gravel or crushed rock surface with engine off.
7. Never attempt to make any adjustments while the engine is running (except where specifically recommended by manufacturer).
8. Let engine and machine adjust to outdoor temperatures before starting to clear snow.

OPERATION

1. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
2. Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
3. After striking a foreign object, stop the engine, remove the wire from the spark plug, thoroughly inspect the Sno-Thro for any damage, and repair the damage before restarting and operating the Sno-Thro.
4. If the Sno-Thro should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
5. Stop the engine whenever you leave the operating position, before unclogging the blower/impeller housing or discharge guide, and when making any repairs, adjustments, or inspections.
6. When cleaning, repairing, or inspecting, make certain the blower/impeller and all moving parts have stopped. Disconnect the spark plug wire.
7. Do not run the engine indoors, except when starting the engine and for transporting the Sno-Thro in or out of the building. Open the outside doors; exhaust fumes are dangerous.
8. Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
9. Never operate the Sno-Thro without proper guards, plates, or other safety protective devices in place.
10. Never operate the Sno-Thro near glass enclosures, automobiles, window wells, drop-offs, etc., without proper adjustment of the snow discharge angle. Keep children and pets away.
11. Do not overload the Sno-Thro capacity by attempting to clear snow at too fast a rate.
12. Never operate the Sno-Thro at high transport speeds on slippery surfaces. Use care when backing.
13. Never direct discharge at bystanders or allow anyone in front of the unit.
14. Disengage power to the blower/impeller when Sno-Thro is transported or not in use.
15. Use only attachments and accessories approved by Ariens.
16. Never operate the Sno-Thro without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk; never run.

MAINTENANCE AND STORAGE

1. Check shear bolts, engine mounting bolts, etc., at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
2. Never store the Sno-Thro with fuel in fuel tank inside a building where ignition sources are present such as hot water and space heaters, clothers dryers, etc. Allow the engine to cool before storing in any enclosure.
3. Always refer to Owner's Manual for important details if the Sno-Thro is to be stored for an extended period.
4. Run the Sno-Thro a few minutes after throwing snow to prevent freeze-up of the blower/impeller.

CONTENTS

THIS SAFETY ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY INFORMATION IN THIS MANUAL. WHEN YOU SEE THE SYMBOL BE ALERT TO THE POSSIBILITY OF INJURY AND CAREFULLY READ THE INFORMATION THAT FOLLOWS.

WARNING
ROTATING PARTS
Stop engine and remove spark plug ignition wire before removing obstructions.

WARNING
MUFFLER & ADJACENT AREAS MAY EXCEED 150°F.

WARNING
ROTATING PARTS
Keep clear of collector rakes while engine is running
SAFETY INSTRUCTIONS

BE AWARE OF SAFETY DECALS

CAUTION: DO NOT PUT YOUR HAND INTO THE DEFLECTOR OR CHUTE. USE THE HANDLE PROVIDED TO ADJUST CHUTE DEFLECTOR TO DESIRED HEIGHT.

CAUTION: A HIGH SPEED IMPELLER (FAN) ROTATES INSIDE HOUSING TO THROW THE SNOW. NEVER REACH OR PUSH ANY OBJECT INTO THE DISCHARGE CHUTE OR DELFECTOR TO REMOVE ANY MATERIAL WITH THE SNO-THRO RUNNING.

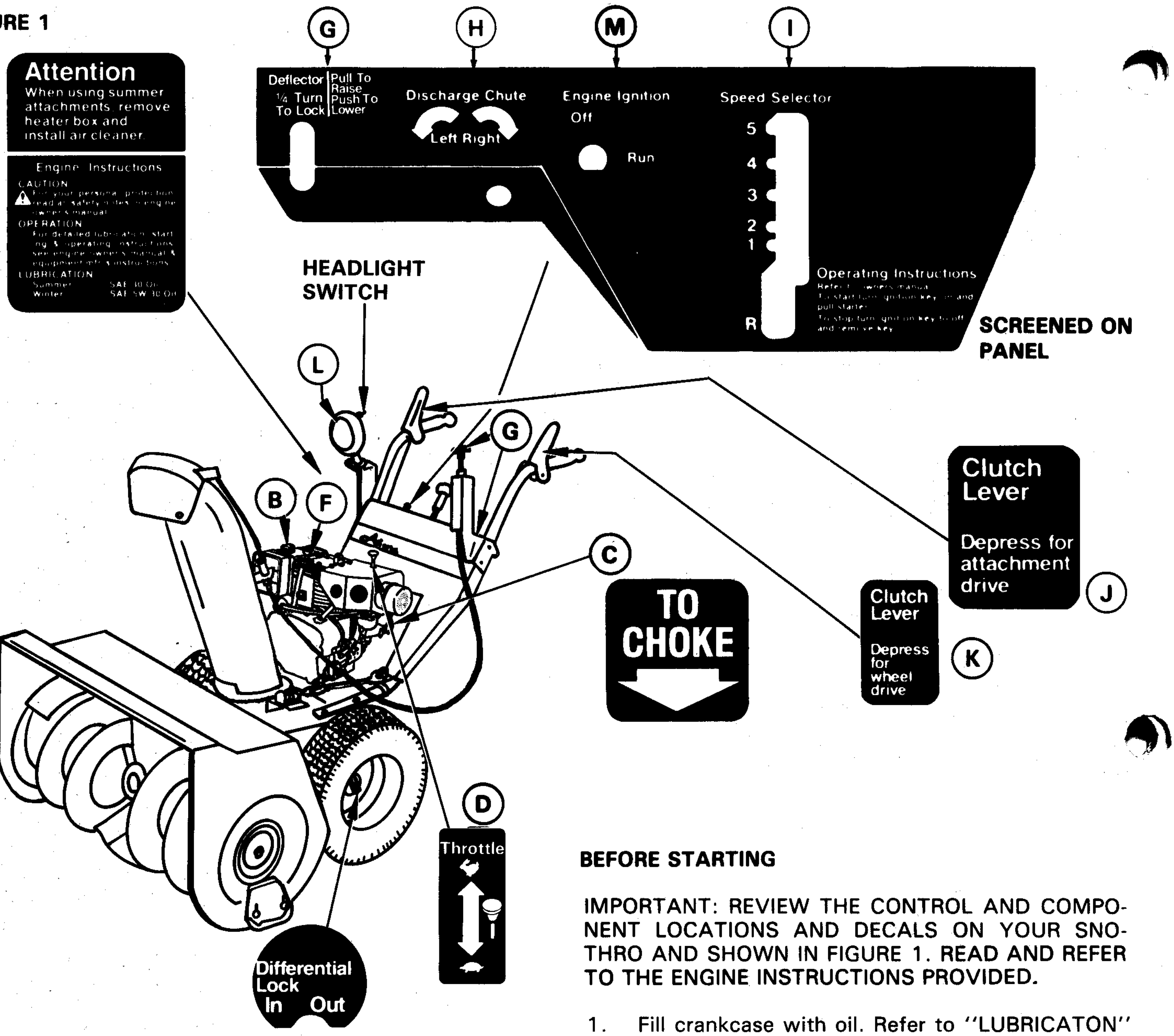
IMPORTANT: CHECK FOR FROZEN IMPELLER (FAN) BEFORE STARTING ENGINE. IF FAN IS FROZEN FREE IT BY THAWING THE SNO-THRO IN A HEATED BUILDING. THE BEST METHOD IS TO PREVENT FREEZING BY ALLOWING THE BLOWER TO RUN FOR A SHORT TIME AFTER SNOW THROWING TO ALLOW SLUSH AND WATER TO BLOW OUT.

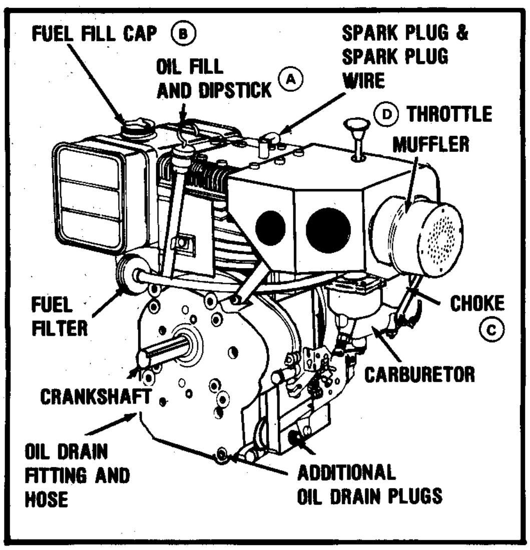
CAUTION: KEEP HANDS, FEET AND OBJECTS EXCEPT SNOW OUT OF THE AUGER.

CAUTION: WET SNOW TENDS TO INCREASE THE CHANCE OF CLOGGING AND TO DECREASE THE DISCHARGE DISTANCE. IF A CLOG OCCURS, STOP ENGINE, REMOVE SPARK PLUG WIRE, AND TURN DISCHARGE CHUTE TO RIGHT. POKE OUT WET SNOW WITH A BROOM HANDLE, STICK OR SIMILAR OBJECT. IF AN OBSTRUCTION BECOMES LODGED IN IMPELLER OR AUGER USE THE BROOM HANDLE (NOT YOUR HANDS!) TO PUSH AND ROTATE THE IMPELLER BACKWARDS (COUNTER-CLOCKWISE) VIEWED FROM OPERATOR POSITION) AND CLEAR CLOG. IF THIS IS UNSUCCESSFUL, REMOVE DISCHARGE CHUTE FOR ACCESS TO CLOG. YOUR ARIENS DEALER CAN PROVIDE FURTHER ASSISTANCE.

NOTE: THIS PRODUCT IS EQUIPPED WITH AN INTERNAL COMBUSTION TYPE ENGINE. DO NOT USE UNIT ON OR NEAR ANY UNIMPROVED, FOREST-COVERED OR BRUSH-COVERED LAND UNLESS THE EXHAUST SYSTEM IS EQUIPPED WITH A SPARK ARRESTER MEETING APPLICABLE LOCAL, STATE OR FEDERAL LAWS. A SPARK ARRESTER, IF IT IS USED, MUST BE MAINTAINED IN EFFECTIVE WORKING ORDER BY THE OPERATOR. SEE YOUR ARIENS DEALER OR ENGINE MANUFACTURER'S SERVICE CENTER.

FIGURE 1





BEFORE STARTING

IMPORTANT: REVIEW THE CONTROL AND COMPONENT LOCATIONS AND DECALS ON YOUR SNO-THRO AND SHOWN IN FIGURE 1. READ AND REFER TO THE ENGINE INSTRUCTIONS PROVIDED.

1. Fill crankcase with oil. Refer to "LUBRICATON" section of this manual.(A)

2. Add regular leaded or low-lead gasoline. Do not mix oil with gas. See engine instructions.(B)

⚠

CAUTION: MAKE VISUAL CHECKS WITH REGARDS TO SAFETY PRECAUTIONS SUCH AS OUTLINED ON PAGE 2.

DIFFERENTIAL LOCK:

The Differential Lock is located in the left wheel hub. When preparing to blow snow, turn the Differential Lock untill it snaps "IN". In this position the differential is locked and both wheels turn together. Power is applied equally to both. To use the differential, pull back on the knob and turn it to the "OUT" position. This unlocks the differential for easy turning while transporting or with mower or brush attachments.

OPERATION

TO START

1. Turn key to "RUN" position. Ⓜ

2. Move Throttle to "FAST" position. Ⓓ

3. Move Choke Control to "CHOKE" position Ⓒ. When engine warms up move Choke Control to "OFF" (no choke) position.

4. Turn Discharge Chute to left before starting. Ⓗ Pull Rewind Starter. Ⓕ

   a. Pull rope out slowly until the engine reaches the start of the compression cycle. (The rope will pull slightly harder at this point.)

   b. Let the rope rewind slowly.

   c. Pull the rope with a rapid full arm stroke. Let the rope rewind slowly - do not let the rewind handle snap back.

NOTE: IF YOUR SNO-THRO IS EQUIPPED WITH AN ELECTRIC STARTER, REFER TO THE INSTRUCTIONS PROVIDED WITH THE STARTER.

5. As desired, turn on and, if necessary, adjust headlight Ⓛ. See Figure 1.

TO TRANSPORT (TRACTION DRIVE)

1. Move Speed Selector to desired speed. Ⓘ

2. Press down on the top of the handbars enough to raise the front of the Sno-Thro slightly off the ground.

3. Depress Traction Clutch Lever to transport. Ⓚ

TO OPERATE

1. Move Chute Deflector to desired height with remote control provided. Remote control knob must be turned to unlock position to raise or lower Deflector. After Deflector is adjusted lock the knob which locks the Deflector in place. Ⓖ

2. Turn Hand Crank to direct Discharge Chute. Ⓗ Direct snow away from area to be cleared; the chute will adjust through a 230° turn.

3. Move Speed Selector to desired speed. Ⓘ

4. Depress Attachment Clutch Lever to engage snow throwing. Ⓙ

IMPORTANT: IF THE IMPELLER (FAN) IS FROZEN OR RUSTED, THE BLOWER ATTACHMENT WILL NOT FUNCTION CAUSING POSSIBLE DAMAGE TO BLOWER BELT AND DRIVE COMPONENTS. BE CAREFUL TO GRADUALLY ENGAGE ATTACHMENT CLUTCH LEVER TO ACTIVATE IMPELLER (FAN) BEFORE OPERATING.

5. Move Throttle to "FAST" position. Ⓓ

6. Depress Traction Clutch Lever to drive the Sno-Thro wheels. Ⓚ

NOTE: BOTH HANDLEBAR CLUTCH LEVERS MUST BE DEPRESSED TO OPERATE AND BLOW SNOW. SPEED OF THE MACHINE IS CONTROLLED BY THE THROTTLE AND SPEED SELECTOR.

TO STOP

1. Release Traction Clutch Lever. Ⓚ

2. Except for emergency stops, allow the Sno-Thro Attachment Clutch to be engaged and the engine run for a short time to throw out slush and water and prevent freezing of the fan.

3. Release Attachment Clutch Lever. Ⓙ

4. Turn key to "OFF" position. Ⓜ

5. Place Throttle in "FAST" position. Ⓓ Place Choke Control in "CHOKE" position Ⓒ.

NOTE: THIS SNO-THRO IS EQUIPPED WITH A MECHANICAL INTERLOCK BETWEEN WHEEL DRIVE CLUTCH AND ATTACHMENT CLUTCH LEVERS. WHEN BOTH CLUTCH LEVERS ARE ENGAGED THE MECHANICAL INTERLOCK WILL ENGAGE AND THE ATTACHMENT CLUTCH WILL REMAIN ENGAGED AS LONG AS THE TRACTION CLUTCH LEVER IS NOT RELEASED. THIS FREES THE RIGHT HAND TO OPERATE OTHER CONTROLS. ONCE THE MECHANICAL INTERLOCK IS ENGAGED, BOTH THE WHEEL DRIVE AND ATTACHMENT CLUTCH LEVERS MUST BE RELEASED TO DISENGAGE THE ATTACHMENT DRIVE.

OPERATING TIPS

1. Snow is best removed as soon as possible after snow fall. Adjust runners and scraper blade to suit surface conditions. See "ADJUSTMENTS-MAINTENANCE" section of this manual.

2. To clear an area properly run the Sno-Thro in an overlapping series of paths. For large areas start in the middle and blow snow to each side so it doesn't have to be moved more than once.

3. Snow should be discharged with the direction of wind whenever possible. Do not blow snow any higher than necessary.

4. Chemicals used to melt ice and snow may damage the finish of your Sno-Thro. When possible, wipe the Sno-Thro clean with a rag (automotive wiper washer fluid may be applied) to remove residue.

Ariens Company recommends that you have adjustments made by your local **Ariens dealer**. He has the tools and know-how to properly perform these maintenance adjustments which may be required to keep the Sno-Thro operating at peak efficiency. The Sno-Thro is equipped with the finest quality engine obtainable. However, should servicing be required, it can be obtained from an **Ariens dealer** or an authorized engine manufacturer's service station. Should you decide to make adjustments on your Sno-Thro yourself, Ariens recommends that you call your dealer for the answers to any questions that might arise in performing this work.

SHEAR BOLT REPLACEMENT — FIGURE 12

Occasionally an object may enter the collector and jam the rakes. When this occurs, the shear bolts securing the rakes to the shaft will break and allow the rake to turn freely on the shaft preventing damage to the gear drive. When this happens, turn off the engine, remove wire from spark plug, remove the broken shear bolt and replace with a new ARIENS shear bolt. Use of any other type of shear bolt may result in severe damage to the machine. USE ONLY ARIENS SHEAR BOLTS FOR REPLACEMENT. Lubricate rakeshaft according to instructions in "LUBRICATION".

RUNNERS AND SCRAPER BLADE — FIGURES 2 & 12

The runners on each side of the blower housing, and the scraper blade, along the bottom of the housing, are all adjustable to suit conditions. Raising or lowering the runners controls the distance the scraper blade is held above the surface being cleared. Runners are adjusted by loosening the two nuts securing each runner. See Figure 2. Move the runner to the desired position and retighten the nuts. Be sure to adjust both runners to the same height to keep blower housing level. Uneven runners make the machine difficult to steer and will result in an uneven clearing job.

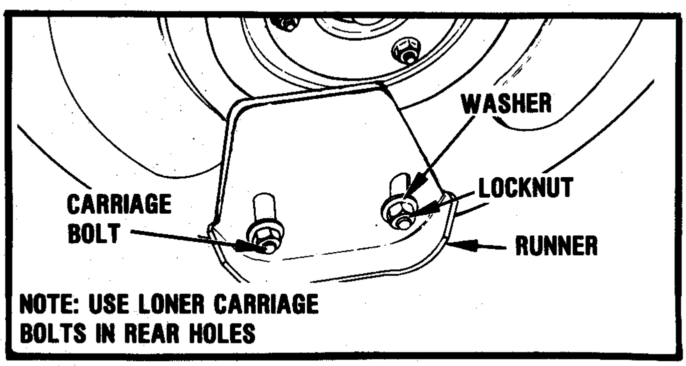


FIGURE 2

Adjustment of the runners is critical to good cleaning. If the machine is to be used on a gravel surface lower the runners so the blower will not pick up gravel. After the remaining snow is packed down, the runners may be raised for close scraping. On smooth concrete or blacktopped surfaces, the runners may be raised so the scraper blade rests on the surface and scrapes clean.

The runners may be removed from the blower housing and re-installed in upside-down position to reduce contact area and thus reduce tendency to ride up when clearing hard-packed snow.

The scraper blade is adjustable so it may be lowered to compensate for wear. See Figure 12 and page 12 illustration. Loosen locknuts securing scraper blade and move it down to compensate for wear. Retighten locknuts. If the blade is allowed to wear down too far the blower housing may be damaged.

ATTACHMENT CLUTCH ADJUSTMENT — FIGURE 16

The Attachment Clutch is adjusted by connecting the chain to the spring just below the attachment clutch rod. Connect the spring to a chain link so the chain is snug but so the attachment idler (Figure 7) drops away from the blower drive belt with the lever all the way up.

TRACTION CLUTCH ADJUSTMENT — FIGURE 3

A drive disc adjustment is provided to compensate for wear on the friction wheel. If slippage occurs when the traction clutch is engaged, perform the drive disc adjustment. This adjustment is possible without removing the bottom cover. "Lock in" the differential during this procedure.

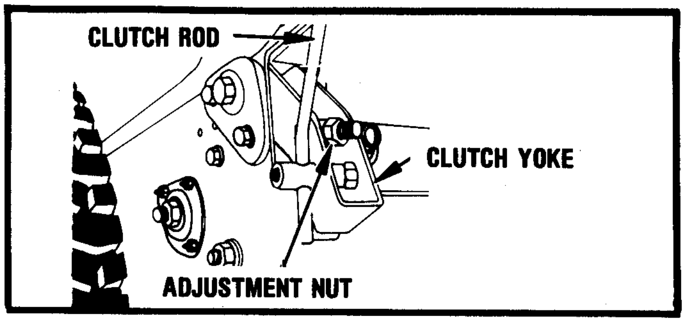


FIGURE 3

Adjust as follows: Place Speed Selector in First. Tip machine forward on blower housing. Tighten the adjustment nut while turning the wheels until the wheels begin to drag. When wheels begin to drag, the clutch lever should be engaged and released to realign clutch linkage prior to adjustment. It may be necessary to repeat this procedure until proper adjustment is obtained. Turn nut back three turns. Wheels should then turn easily.

CHUTE CRANK ADJUSTMENT — FIGURE 4

In the event the chute crank fails to rotate smoothly loosen the nut securing the worm clevis to the bracket. This hole in the bracket is slotted to permit adjustment. Position the worm so it aligns with the teeth on Discharge Chute and there is a little clearance between worm and the gear teeth. Tighten the nut. Rotate the discharge chute through its full travel to see that it turns easlily. Readjust if required. Lubricate as described in "LUBRICATION" section. Tension on chute crank

may be adjusted to prevent Discharge Chute from rotating without crank. Tighten the chute crank adjustment nuts on the end of the crank to put increased tension on the washers and wave washers.

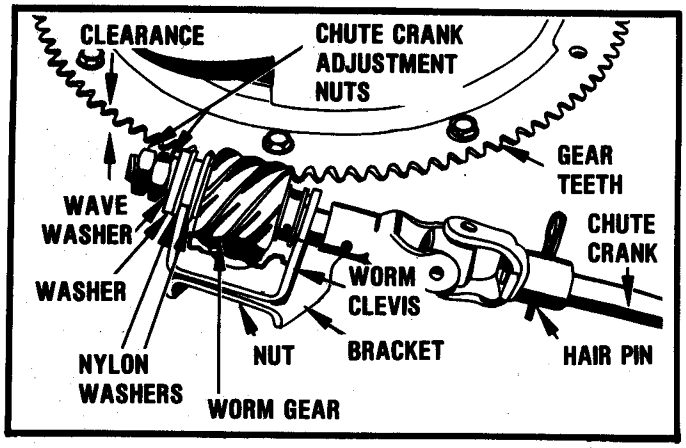


FIGURE 4

INFLATE TIRES

Tires should be inflated to 12 to 20 PSI. If tire chains are used, a pressure of 20 PSI is recommended.

REMOVAL OF BLOWER HOUSING AND BELT REPLACEMENT

CAUTION: SINCE REPLACING THE BELTS WILL INVOLVE TURNING THE ENGINE OVER WITH THE STARTER, AND THE ENGINE MIGHT ACCIDENTALLY START RESULTING IN INJURY, THE SPARK PLUG WIRE MUST BE DISCONNECTED DURING THIS PROCEDURE.

The traction drive belt and the blower drive belt are both accessible by removing the blower housing as follows:

1. See Figure 21 ("ASSEMBLY & PRE-SERVICE" section). Remove hairpin securing the deflector control cable to the deflector. Loosen jam nuts securing deflector control cable to bracket on chute. Then free the cable from the Sno-Thro blower housing.
2. Remove the hair pin cotter in the chute crank assembly. Separate the chute crank. See Figure 4.
3. Remove the two screws securing the belt guard to the tractor. Remove the belt guard.

NOTE: TIPPING THE TRACTOR BACK ON THE HANDLEBARS WHEN SEPARATING THE UNITS MAY RESULT IN BENDING THE BOTTOM COVER. TO AVOID THIS SITUATION, EITHER TIP THE UNIT UP ON THE BLOWER HOUSING AND REMOVE THE BOTTOM COVER BEFORE SEPARATING THE UNITS; OR SUPPORT THE HANDLEBARS SO THE TRACTOR DOES NOT TIP ALL THE WAY OVER; THEN LIFT OFF THE BLOWER HOUSING.

4. Remove the screws on each side that secure the blower housing to the frame. As the blower housing and tractor are tipped apart, roll the blower drive belt off the engine sheave between the sheave and belt finger. This can be easily done by pulling the recoil starter rope to rotate the engine sheave. With the belt disconnected, the blower housing may then be lifted from the frame.

REPLACEMENT OF THE BLOWER DRIVE BELT

CAUTION: SINCE REPLACING THE BELTS WILL INVOLVE TURNING THE ENGINE OVER WITH THE STARTER, AND THE ENGINE MIGHT ACCIDENTALLY START RESULTING IN INJURY, THE SPARK PLUG WIRE MUST BE DISCONNECTED DURING THIS PROCEDURE.

The Sno-Thro blower drive belt is located on the sheave of the blower housing. To replace this belt, hold the impeller brake away from the belt and slip the belt from the sheave. See Figure 5.

Replace the blower drive belt by slipping it into position on the sheave, positioning the brake shoe on the belt.

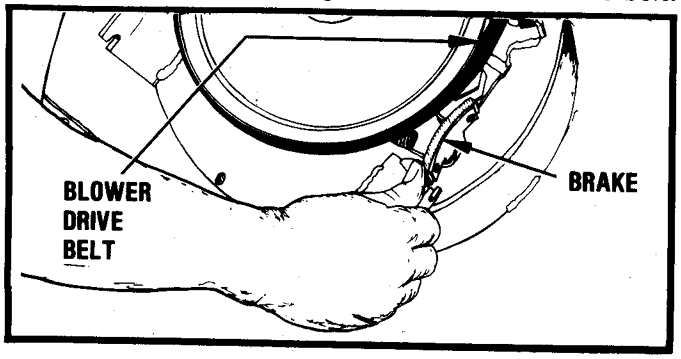


FIGURE 5

REPLACEMENT OF TRACTION DRIVE BELT – FIGURE 6.

CAUTION: SINCE REPLACING THE BELTS WILL INVOLVE TURNING THE ENGINE OVER WITH THE STARTER, AND THE ENGINE MIGHT ACCIDENTALLY START RESULTING IN INJURY, THE SPARK PLUG WIRE MUST BE DISCONNECTED DURING THIS PROCEDURE.

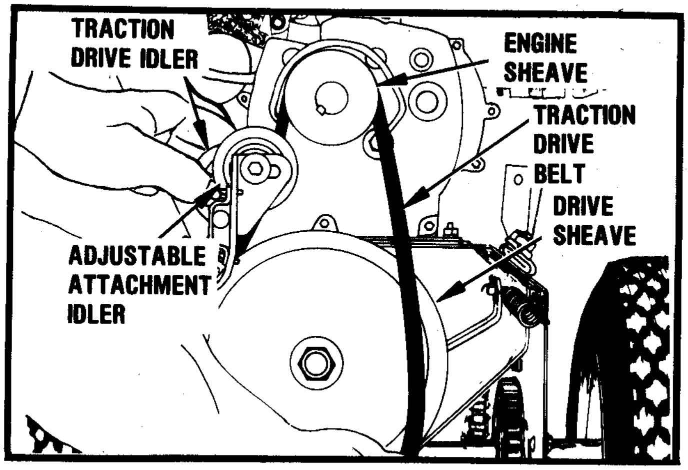


FIGURE 6

The traction drive belt is held in place on the sheaves by an idler pulley. To free the belt, the idler can be pulled from the belt and the belt removed from the sheave. Activate traction clutch to gain clearance. It may be necessary to pull back attachment idler arm clevis pin for additional clearance.

To replace the belts, position on the engine sheave first, then on the drive sheave. Position the idler carefully on the belt.

With the belt in position and the idler in place, check the belt alignment. The engine sheave and the traction sheave must align with one another WITH THE TRACTION CLUTCH ENGAGED. If the sheaves are not properly aligned, loosen the setscrews on the engine sheave and align the sheaves. Re-tighten the setscrews. Recheck the belt alignment WITH THE TRACTION CLUTCH ENGAGED. Replace spark plug wire.

A NOTE ABOUT ARIENS BELTS

ARIENS BELTS are individually engineered to the highest standards of material quality, design, and construction including special cording locations for strength and stability. This assures that the belts will deliver maximum performance and durability for each product's specific applications.

The selling price of **ARIENS BELTS** reflects these quality features. Our name and number stamped on your replacement belt is your assurance of receiving the quality you are paying for.

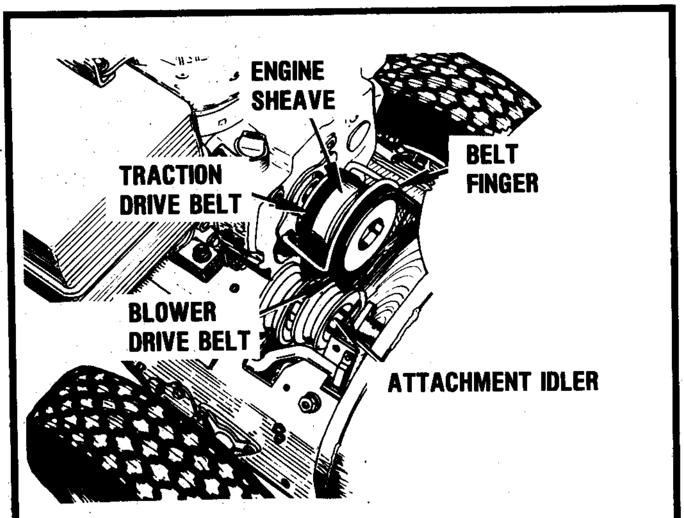


FIGURE 7

INSTALLATION OF BLOWER HOUSING — FIGURE 7

CAUTION: SINCE REPLACING THE BELTS WILL INVOLVE TURNING THE ENGINE OVER WITH THE STARTER, AND THE ENGINE MIGHT ACCIDENTALLY START RESULTING IN INJURY, THE SPARK PLUG WIRE MUST BE DISCONNECTED DURING THIS PROCEDURE.

Position the blower housing on the rod in the tractor frame and secure as follows:

1. Tip the blower and tractor together. Hold the blower drive belt up as the units are tipped together. Secure with two screws into the frame. As the screws are tightened, hold up on the handlebars to be sure the two units are secured together.
2. Roll the blower drive belt on to the engine sheave. Pull the recoil starter rope to turn the engine sheave and roll the belt into place under the belt finger.
3. Check the belt finger spacing. There should be 1/8 inch clearance all around the belt finger and blower drive belt with the attachment clutch engaged. Readjust the belt finger if required.
4. Check the sheave alignment with the blower drive belt in place. Readjust the position of the blower sheave as required to align the sheaves. Be sure the brake pad aligns with the blower sheave.
5. The idler on the blower drive belt is adjustable. If the belt slips, adjust the idler in the slot in the idler arm to apply more tension to the belt. Belt should declutch when attachment clutch is disengaged.
6. Replace the belt guard and chute crank assemblies. See " CHUTE CRANK ADJUSTMENT" section. Replace the spark plug wire. Replace the deflector cable in the chute wire. Replace the deflector cable in the chute bracket and the deflector bracket. Adjust cable as required. See "ASSEMBLY & PRE-SERVICE" section.

REPLACEMENT OF FRICTION WHEEL — FIGURE 8

1. Adjust fuel tank level to prevent spilled gasoline. Tip the machine up on the blower housing and brace securely. Remove the top two screws and loosen the other two, securing the bottom cover and remove the cover.

2. Place the Speed Selector in "FIRST" position. Depress the Traction Clutch Lever to hold the friction wheel while the five bolts securing the fric-

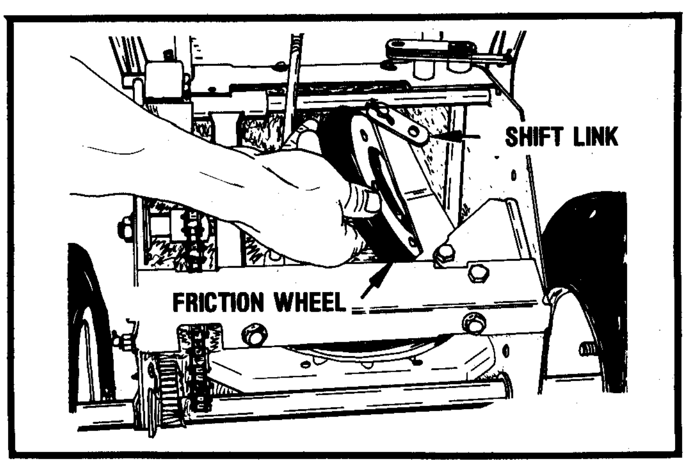


FIGURE 8

tion wheel to the hub are loosened. Remove the five bolts, shift to "THIRD" position and disconnect the shift link. See Page 12 illustration.

3. Position a new friction wheel on the hub and replace the five bolts. Tighten these bolts to 8-10 foot pounds with a torque wrench. Replace the shift links. See Page 12 illustration.

4. Replace the bottom cover. Readjust the drive disc as described in the "TRACTION CLUTCH ADJUSTMENT" section on page 6.

DRIVE CHAIN ADJUSTMENT – FIGURE 9

If Sno-Thro is difficult to push because of tight or interfering drive chains, proceed as follows:

1. Stand unit up on blower housing and remove bottom cover.
2. Chain tension is adjusted by loosening the two nuts on the reduction shaft. Adjust reduction sprocket up or down in slot to obtain proper tension (chain should be snug). Retighten both nuts. Torque to 170-180 inch lbs.

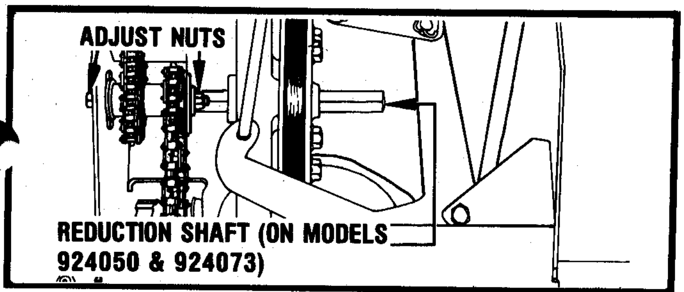


FIGURE 9

CLUTCH HANDLE INTERLOCK – FIGURE 10

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NOTE: THIS FEATURE IS PROVIDED FOR YOUR CONVENIENCE. THE ATTACHMENT CLUTCH MAY BE ENGAGED ALONG WITH THE TRACTION CLUTCH WHEN OPERATOR IS HOLDING DOWN THE TRACTION CLUTCH LEVER. IF THE OPERATION OF THIS FEATURE DOES NOT FUNCTION AS DESCRIBED IN "OPERATION" SECTION OF THIS MANUAL, THE FOLLOWING PROCEDURE SHOULD BE PERFORMED.

1. Check both clutches to be sure they operate freely without binding.
2. Release Traction Clutch Lever ("UP" position). Pull bell crank down until slider is at end of slot. See Figure 10. Secure clevis to traction clutch rod at this position with setscrew.
3. Engage both clutch levers ("DOWN" position). Adjust clevis on attachment clutch rod to where it clears roller in slider by 1/16" and the "TOE" of the clevis is parallel to the slider.
4. Release clutch levers. Check latching of interlock for proper operation.

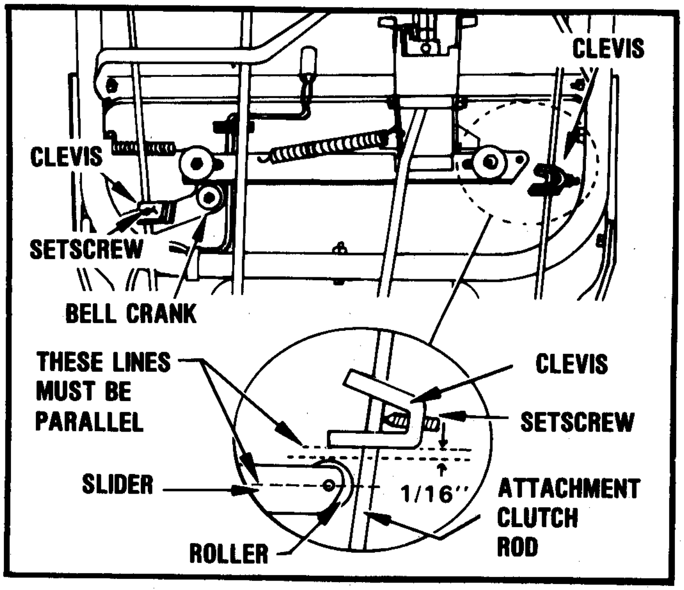


FIGURE 10

STORAGE

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WARNING: NEVER STORE SNO-THRO IN AN ENCLOSED AREA WHERE FUEL FUMES MAY REACH AN OPEN FLAME, SPARK, OR PILOT OF FURNACE, ETC. DRAIN FUEL OUTDOORS, AWAY FROM OPEN FLAME, AND USE ONLY AN APPROVED FUEL CONTAINER.

ENGINE

Refer to Engine Manufacturer's Instructions supplied with this product.

GENERAL

Store Sno-Thro in a cool, dry place.

Inspect Sno-Thro for visible signs of wear, breakage or damage. Order any parts required and make necessary repairs to avoid delays when beginning use again. Your Ariens dealer will be able to assist you.

Lubricate Sno-Thro as described in "LUBRICATION" section of this manual.

Clean the Sno-Thro thoroughly. Touch up all unpainted and exposed areas with paint to avoid rust.

LUBRICATION

ENGINE — FIGURE 1

Fill Crankcase with oil as recommended in Engine Manufacturer's Instructions supplied with the product. Check oil level before each use and change oil regularly according to Engine Manufacturer's Instructions.

SNO-THRO DRIVE — FIGURES 11 & 12

At the start of each operating season, grease gears, pinion sprocket, reduction shaft and axle shaft as indicated in Figure 11. Put a few drops of oil on the Speed Selector linkage and other linkage points.

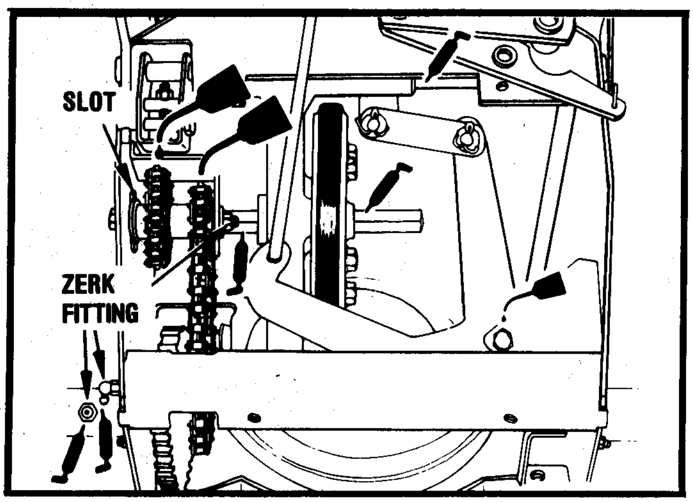


FIGURE 11

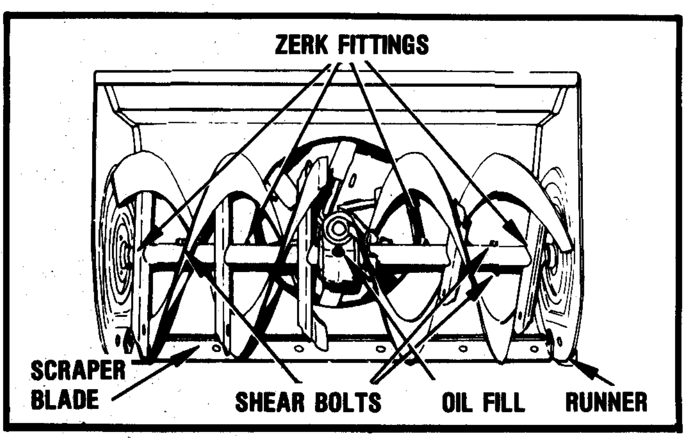


FIGURE 12

CAUTION: DO NOT ALLOW GREASE OR OIL TO COME IN CONTACT WITH FRICTION WHEEL, DRIVE DISC, OR BELTS. DO NOT APPLY OIL TO A HOT AREA.

Grease rake shaft at beginning of season, periodically or each time a shear bolt is replaced. At the end of the season, remove shear bolts, use a grease gun on zerk fittings to grease rake shaft, turn rakes on shaft several times and replace shear bolts. See Figure 12. Use Ariens Multi-Purpose grease (Part No. 000150).

DISCHARGE CHUTE — FIGURE 13

Oil the discharge chute with several drops of oil.

GEARCASE — FIGURE 14

Check oil level periodically. Oil level must be up to oil fill hole. Change oil every 25 hours or once each season which ever comes first. Fill with Ariens Special L-2 Gear Lubricant (Part No. 000080). Use approximately 5 oz.

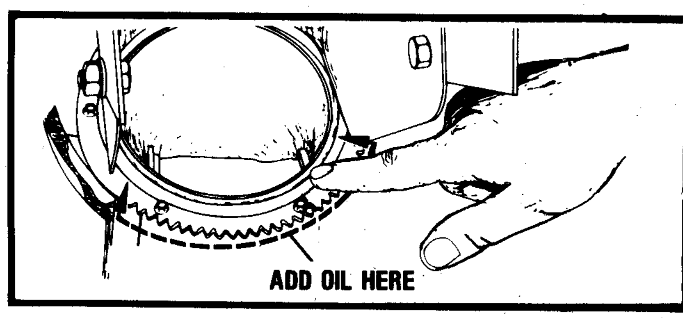


FIGURE 13

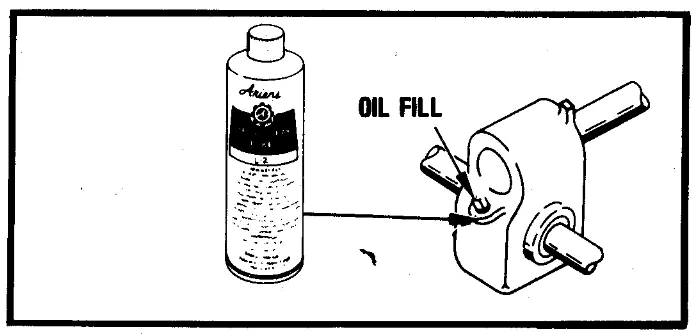


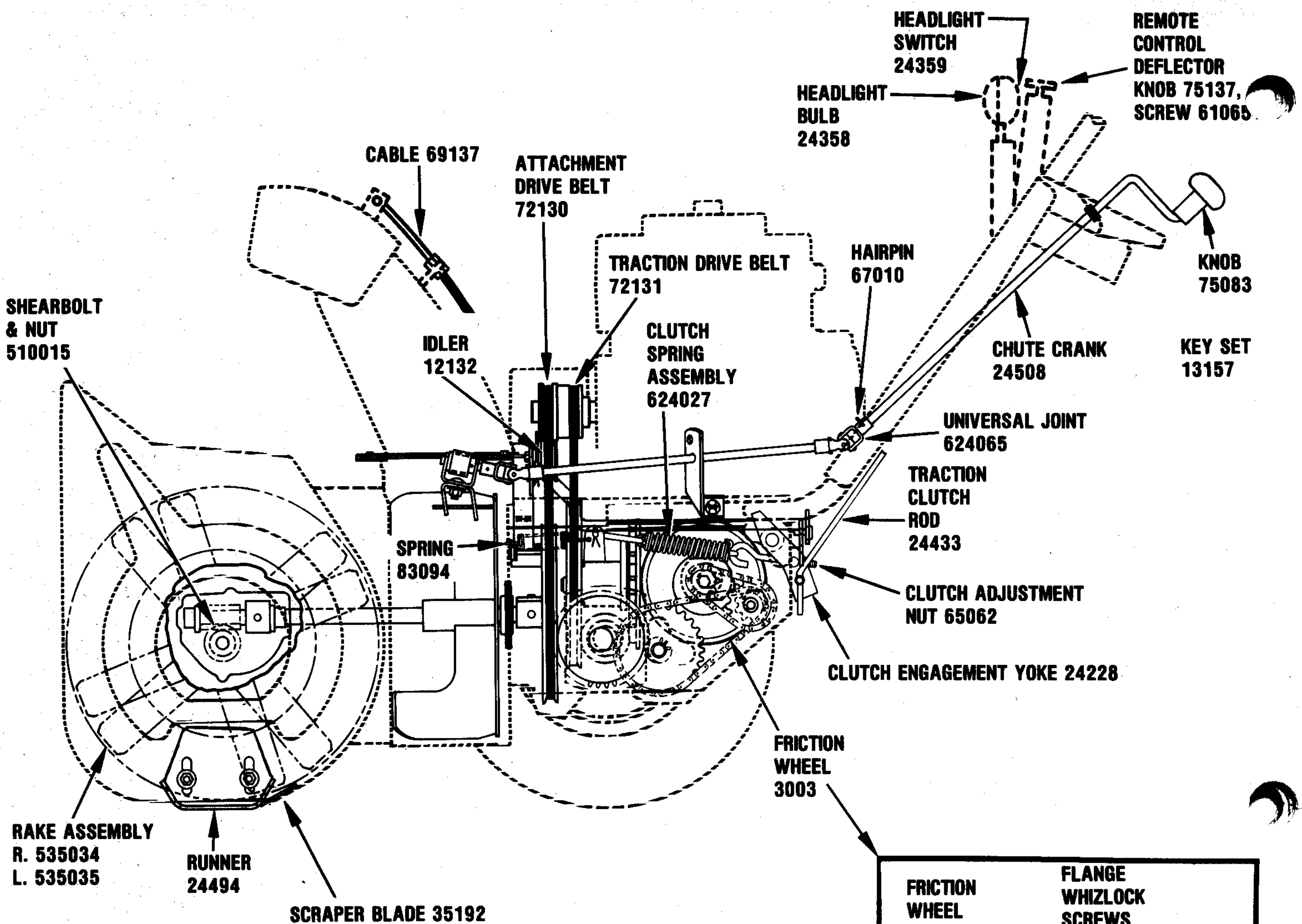
FIGURE 14

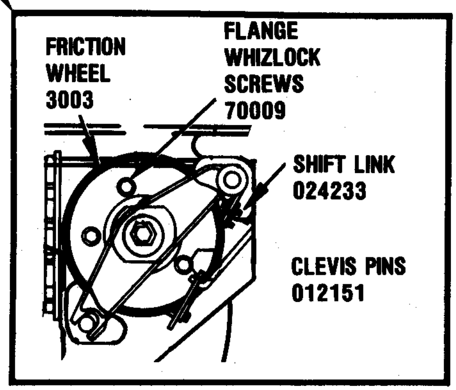
SNO-THRO SERVICE GUIDE

CAUTION: BEFORE SERVICE IS ATTEMPTED REVIEW AND FOLLOW INSTRUCTIONS FOR SAFE OPERATION, PAGE 2

PROBLEM	POSSIBLE CAUSE	CORRECTION
Difficult starting, engine runs poorly.	1. Defective spark plug.	1. Replace spark plug, check connections of plug wire.
	2. Engine is not getting fuel.	2. Fill fuel tank; check and clean fuel line.
Engine stalls or looses power.	1. Choke is on after engine is warm.	1. Turn Choke Lever to "OFF".
	2. Impeller is blocked.	2. Turn off Sno-Thro, remove spark plug wire and remove obstruction with broom handle.
	3. Water in fuel.	3. Follow Engine Instructions to drain tank and refill.
Excessive vibration.	1. Loose hardware securing components.	1. Do not run unit. Stop and tighten all hardware, check for damage.
	2. Damage to unit.	2. See your Ariens dealer.
Sno-Thro will not move.	1. Traction Clutch is not adjusted correctly.	1. Adjust Clutch, see "ADJUSTMENTS-MAINTENANCE" section of Owner's Manual.
	2. Loose or damaged drive belt.	2. Replace belt - see "ADJUSTMENTS -MAINTENANCE" section.
Sno-Thro will not discharge snow.	1. Attachment Clutch is not adjusted correctly.	1. Adjust Clutch, see "ADJUSTMENTS-MAINTENANCE" section of Owner's Manual.
	2. Attachment drive belt is loose or damaged.	2. Replace belt - see "ADJUSTMENTS -MAINTENANCE" section.
	3. Broken shear bolt.	3. Replace with Ariens shear bolt - see "ADJUSTMENTS-MAINTENANCE" section.
	4. Chute or auger is clogged.	4. Turn off Sno-Thro, remove spark plug wire and remove clog with broom handle.
Discharge Chute does not operate smoothly or remain in position selected with chute crank.	1. Worm clevis is not positioned properly on bracket.	1. Adjust worm clevis. See "CHUTE CRANK ADJUSTMENT" in "ADJUSTMENTS-MAINTENANCE" section of this manual.
	2. Chute crank adjustment nuts are not properly adjusted.	2. Adjust chute crank tension by following procedure in "CHUTE CRANK ADJUSTMENT" in "ADJUSTMENTS-MAINTENANCE" section of this manual.

BASIC CONSUMER-USER SERVICE COMPONENTS





NOTE: FOR ENGINE LUBRICATION AND PARTS SUCH AS AIR CLEANER AND SPARK PLUGS REFER TO ENGINE INSTRUCTIONS MANUAL SUPPLIED WITH UNIT. CONTACT ENGINE MANUFACTURER'S DEALER FOR REPLACEMENTS.

PARTS OR SERVICE MANUALS

Basic Consumer-User Service Components are illustrated on this page and are described in the text of this manual. These components are most commonly used for consumer repair.

Should a complete parts list and/or a repair manual less engine be required order under the following part numbers.

Parts Manual	**Part No. PM-24-82**
Repair Manual	**Part No. RM924-1983**
Please Request From:	**AriensService 655 West Ryan Street Brillion, WI 54110**

For engine parts list and repair instructions, contact the engine manufacturer's dealer.

OPTIONAL ATTACHMENTS*:
Rotary Brush, 36" 824004 (RB36)
Rotary Mower, 26" 824005 (RM26)

OPTIONAL ACCESSORIES*:
12 Volt Electric Starter, 724018
120 Volt Electric Starter, 724019
Slicer Bars, 710997
Homeowner's Kit, 724020
Tire Chains, 703985
Adaptor and Air Cleaner Kit - 724028
(Required with 824004 and 824005 attachments)

*Available at Extra Cost.

WARNING: FAILURE TO FOLLOW ALL INSTRUCTIONS FOR ASSEMBLY AND PRE-SERVICE COULD RESULT IN PERSONAL INJURY AND/OR DAMAGE TO THE SNO-THRO. CHECK AND TEST THE FUNCTION OF ALL CONTROLS BEFORE STARTING ENGINE. BE SURE TO FILL ENGINE WITH OIL.

WARNING: ALL ASSEMBLY AND ADJUSTMENT PROCEDURES ARE TO BE MADE WITH ENGINE STOPPED AND SPARK PLUG WIRE DISCONNECTED.

NOTE: MAKE SURE ALL SAFETY DEVICES AND GUARDS ARE IN POSITION AND OPERATING PROPERLY. READ "INSTRUCTIONS FOR SAFE OPERATION" BEFORE USING UNIT.

GENERAL

All hardware and parts required for assembly are shipped in the parts bag or are located, in place, on the machine. The upper handlebars and panel are assembled at the factory with the two clutch rods and interlock system in place and adjusted. The lower handlebars must be installed. The snow head and tractor are shipped assembled with lower shift rod in place. Attachment clutch rod is in place on handle panel assembly.

Handlebar Assembly, Deflector and Discharge Chute, Runners, Remote Deflector Control and Headlight must be attached.

HANDLEBAR — FIGURES 15 & 22

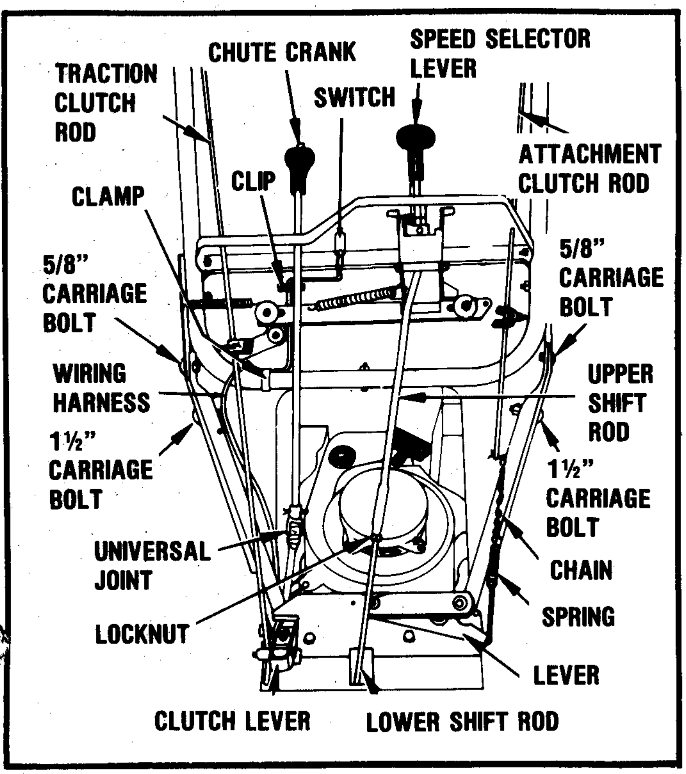


FIGURE 15

Install the lower handlebars on the frame using the studs and hardware in place on the frame. (Leave the hardware loose on the studs until the upper handlebars are installed). Be sure to install the chute crank bracket on the left rear stud of handlebar when installing handlebar. See "CHUTE CRANK" instructions.

Install the upper handlebar and panel on the lower handlebars. Use a 5/8" carriage bolt and locknut in each of the top holes, and a 1-1/2" carriage bolt and locknut in each of the lower holes. With everything in place, tighten all handlebar hardware.

ENGINE — FIGURES 1 & 16

1. Remove oil drain plug from the right hand side of engine base. Install reducer and elbow and tighten until elbow outlet is toward rear of machine. Install drain hose with clamp onto elbow. See Figure 16. Remove plastic cover on oil fill tube and discard.
2. Add oil according to engine manufacturer's instructions provided with the Sno-Thro. After filling crankcase, insert dipstick into the oil fill tube. See Figure 1. The dipstick is shipped with loose parts in the parts container.
3. Install throttle control knob from parts bag by screwing it onto the rod protruding through the top of the engine. See Figure 1.

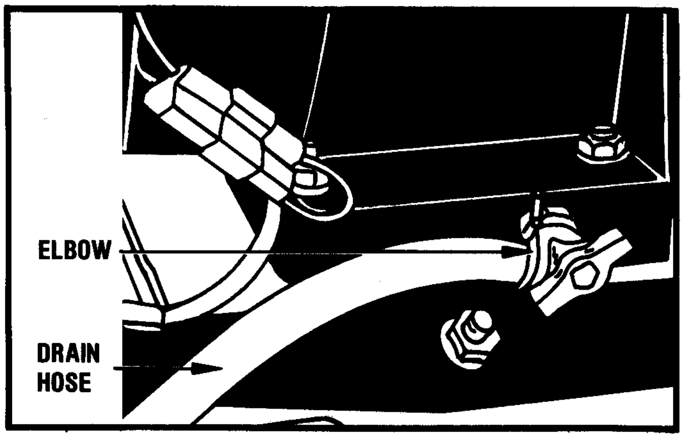


FIGURE 16

CHUTE CRANK — FIGURES 15 & 17

The chute crank is packed separately in the carton. The intermediate shaft, universal joints and chute crank bracket are in place on the machine. The chute crank bracket should be re-installed on the rear, left hand stud at the time the handlebars are installed. Insert the chute crank down into the hole in the handlebar panel and connect to the universal joint on the intermediate shaft with the hairpin cotter provided. See Page 12 illustration also. After completing the chute crank connection, check the alignment of worm and chute by rotating the discharge chute through its full travel. Chute should rotate easily. If not, reposition worm as required and adjust according to "CHUTE CRANK ADJUSTMENT" instructions in "ADJUSTMENTS-MAINTENANCE" section of this manual.

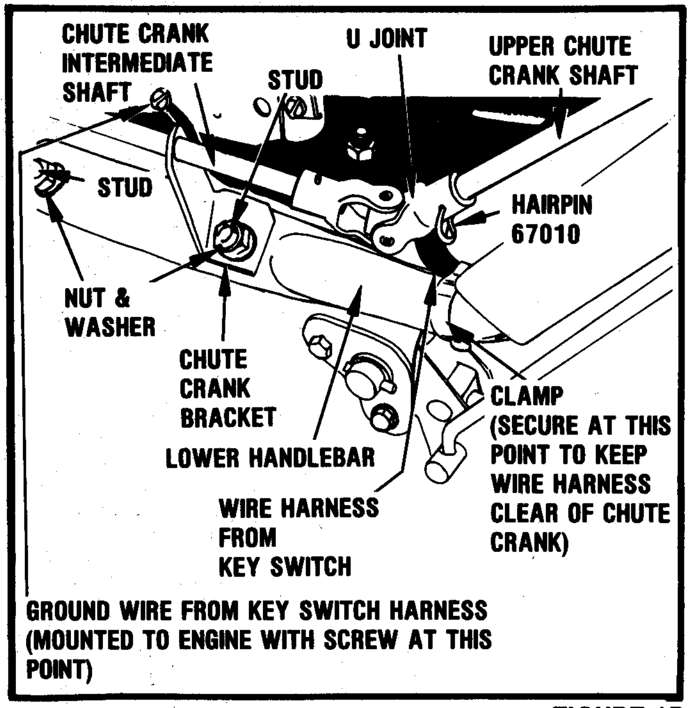


FIGURE 17

SPEED SELECTOR — FIGURE 15

Place the Speed Selector in REVERSE position. Pull up on the lower shift rod which is already installed in the frame. Hold the lower shift rod up while screwing the upper rod in place. Turn the upper rod into the lower until the end of the upper rod lines up with the hole in the shift handle. Install the upper rod in the shift handle and tighten the locknut joining the upper and lower shift rods.

ATTACHMENT CLUTCH ROD — FIGURE 15

The attachment clutch rod is installed in the upper handlebars but the chain must be hooked to the spring on the clutch bell crank. Connect the spring to a link in the chain that will keep the chain snug without pulling up on the bell crank. The attachment idler (Figure 7) pulley must tighten up on the belt when the lever is down and must fall away from the belt when the lever is upright. Adjust chain as required.

TRACTION CLUTCH ADJUSTMENT — FIGURES 15 & 18

1. The Traction Clutch Lever is already positioned on the handlebar and the traction clutch rod is in place on the handle. Check to be sure that the clutch lever is free to fall down on the grip.
2. Insert the lower end of the traction clutch rod into the rod adapter. See Figure 18A.
3. "Lock in" the differential for adjustment procedure. Position the Traction Clutch Lever so that it is all the way forward (up). See Figure 18. Tighten the traction clutch rod in the rod adapter with the setscrew. With Traction Clutch Lever down, clutch yoke should come within 1/16" of top of slot in frame. Adjust as required. Place Speed Selector in First. Tip machine forward on blower housing. Tighten the adjustment nut while turning the wheels until the wheels begin to drag. When wheels begin to drag the clutch lever should be engaged and released prior to adjustment. Back off three (3) turns, See Figure 18A. Wheels should then turn easily.

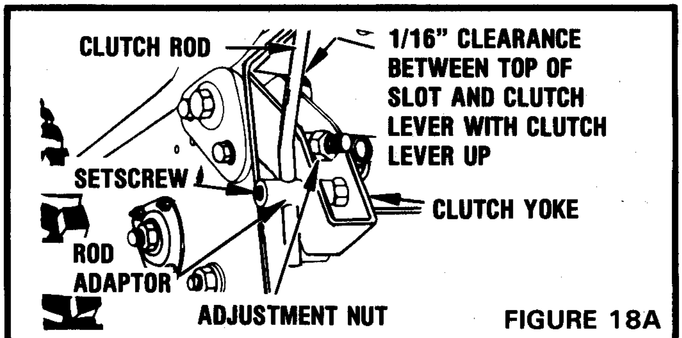


FIGURE 18A

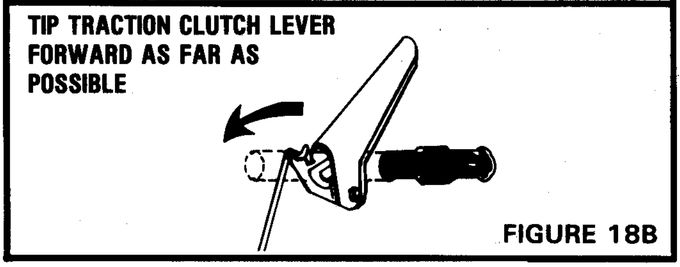


FIGURE 18B

FIGURE 18

KEY SWITCH CONNECTION — FIGURES 15 & 17

The key switch is factory installed in the handlebar panel and the wiring is connected to the engine. Route the wiring harness up the inside of the panel, alongside the lower handlebar. Install clamp to the lower handlebar (left side) as shown in Figure 17. Be sure to position clamp and wires as shown. Position wire in clip on handlebar panel as shown in Figure 15. Install clamp on upper handlebar to secure wire harness as shown in Figure 15. Connect wire harness to switch. Wires can be connected to either terminal.

MECHANICAL INTERLOCK — FIGURE 19

⚠

CAUTION: CHECK INTERLOCK MECHANISM TO ENSURE PROPER OPERATION AS FOLLOWS. FAILURE OF INTERLOCK OPERATION COULD RESULT IN DANGER TO OPERATOR.

1. Check both clutches to be sure they operate freely without binding.
2. Release Traction Clutch Lever ("UP" position). Pull bell crank down until slider is at end of slot. See Figure 19. Secure clevis to traction clutch rod at this position with setscrew.
3. Engage both clutch levers ("DOWN" position). Adjust clevis on attachment clutch rod to where it clears roller in slider by 1/16" and the "toe" of the clevis is parallel to the slider. Secure clevis with setscrew at this position. See Figure 17.
4. Release clutch levers. Check latching of interlock for proper operation.

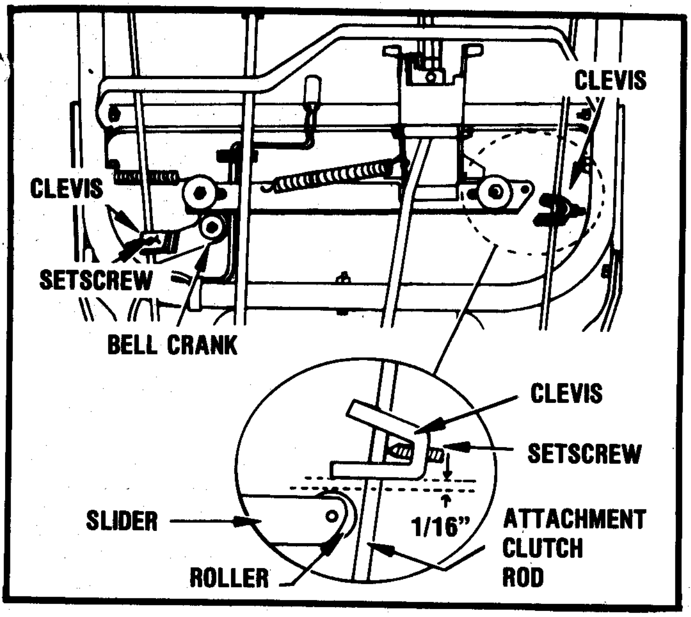


FIGURE 19

REMOTE CONTROL DEFLECTOR – FIGURE 20

Install the bracket of the Remote Control Deflector assembly to the upper left portion of the handlebar panel with screws and nuts securing the upper handlebars to the lower handlebar and panel asembly.

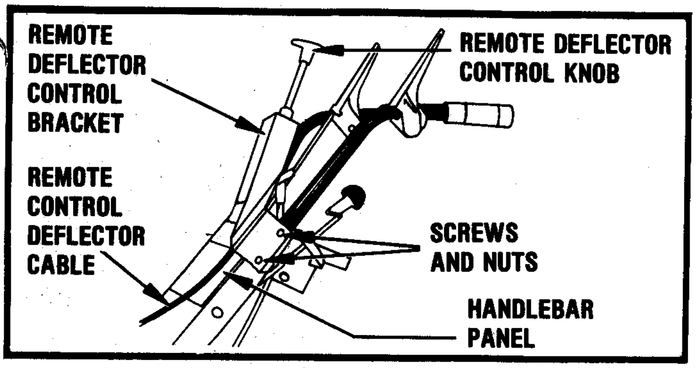


FIGURE 20

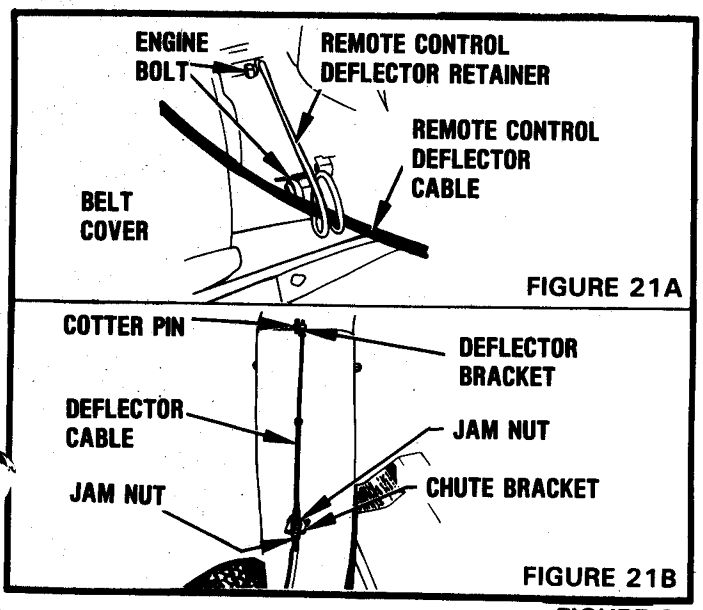


FIGURE 21A

FIGURE 21B

FIGURE 21

DISCHARGE CHUTE & DEFLECTOR CABLE – FIGURE 21

The Deflector and discharge chute are assembled and shipped with the four mounting clips attached to the chute. Remove the clips and hardware. Position the discharge chute on the blower housing. Secure with the clips and hardware. Be sure the chute rotates freely. Route remote deflector cable through the retainer mounted to the engine as shown in Figure 21A. Install deflector cable as shown in Figure 21B to Deflector and discharge chute. Use jam nuts on cable to secure cable to chute bracket and cotter pin to attach cable to bracket on deflector.

DEFLECTOR ADJUSTMENT – FIGURE 21

To adjust the deflector cable for correct travel distance of deflector loosen the jam nuts securing the deflector cable to the bracket on the chute. Set Deflector in lowest position. Then tighten jam nuts. Be sure also to check movement of Deflector to highest position.

RUNNERS – FIGURES 22 & 2

Install runners on each side of the blower housing. Use longer carriage bolts (62013) in the rear holes, shorter carriage bolts (62010) in the front holes. Use a washer (64002) and locknut (65039) on each bolt outside the housing. Adjust the runners to equal height on each side. See "ADJUSTMENTS-MAINTENANCE" section of this manual.

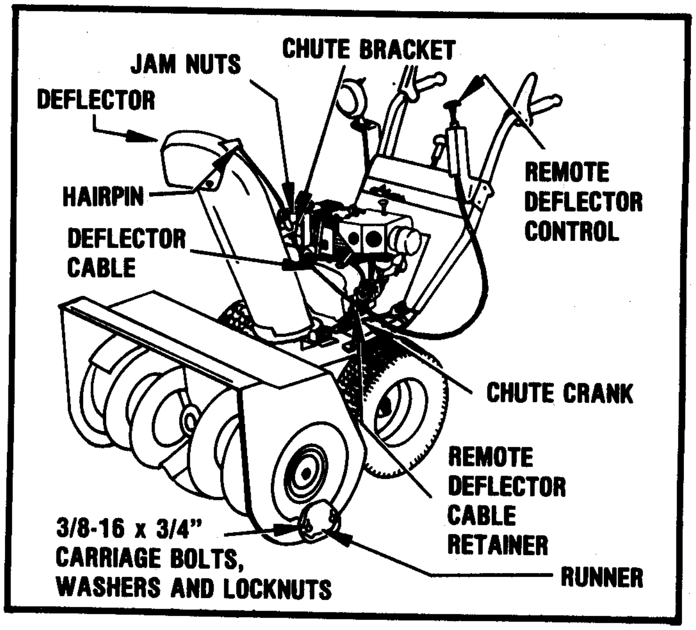


FIGURE 22

BLOWER GEARCASE

Check the oil level in the blower gearcase. Oil level must be even with the oil filler hole. Fill with Ariens Special L-2 Gear Lubricant. Replace the filler plug. See "LUBRICATION" section of this manual.

TIRE PRESSURE

Tires have been under inflated for shipping purposes. For operation, increase tire pressure to 12 to 20 PSI. If

tire chains are used, a pressure of 20 PSI is recommended for proper operation.

BELT ADJUSTMENT

Check the position of the belt fingers on the engine sheave and the alignment of the sheaves. Adjust according to "REPLACEMENT OF TRACTION DRIVE BELT" section of this manual.

DRIVE CHAIN ADJUSTMENT

If the Sno-Thro is difficult to push because of tight or interferring drive chain, readjust as described in "DRIVE CHAIN ADJUSTMENT" section of this manual.

HEADLIGHT INSTALLATION

Refer to instructions provided in the carton for headlight assembly.

REGISTRATION

Fill out pre-warranty registration card and mail to Ariens Company. Warranty will only be registered under the model and serial number found on the serial number label (also stamped into the frame of the unit). Add serial numbers to this page.

DELIVERY

1. Instruct the customer on the operation of the Sno-Thro. Emphasize safety and discuss the safety information in the Owner's Manual.
2. Advise customer to change oil in the engine crankcase after the first two hours of operation.
3. Explain how to perform the recommended lubrication and periodic service.
4. Explain maintenance and adjustment instructions.
5. Demonstrate how to mount and dismount attachments.
6. Make certain the customer has his Owner's Manual and Engine Instructions.
7. Explain Ariens Warranty Policy. Fill out and return Ariens Warranty Registration Card.

SERIAL NUMBER — SNO-THRO
(Plate Located on Rear of Frame)

SERIAL NUMBER — ENGINE
(Stamped into top of Engine above Recoil Start)

A message to the Ariens customer...

Welcome to the world of Ariens equipment. We are pleased that you have selected Ariens and sincerely believe you have purchased the best equipment available. The care you give your new Ariens equipment will greatly determine the satisfaction and service life you will obtain from it. Use this manual and the engine manual supplied, as your guide. By observing the instructions and suggestions in these manuals, your Ariens equipment will serve you well for many years.

Your **Ariens dealer** will be happy to supply any service or advice which may be required to keep your Ariens equipment operating at peak efficiency. He stocks genuine Ariens parts and lubricants; manufactured with the same precision and skill as the original equipment. His factory trained staff is kept well informed on the best methods of servicing Ariens equipment and is ready and able to serve you. If engine repairs or services are required, they can be obtained from an **Ariens dealer** or from an authorized engine manufacturer's service station. If service is required, be prepared to supply the service person with the Model Number and Serial Number of the equipment and the engine, as well as a full description of the problem encountered.